1023-05-1383   **Atoshi Chowdhury*** (`atoshic@princeton.edu`). *Constructing m-articulate collections of de Bruijn sequences.*

A *de Bruijn sequence* of order k over an alphabet A is a cyclic sequence containing every element of A^k exactly once as a subword. We say that a sequence *m-distinguishes* two k-length words $x, y \in A^k$ if it has no m-length subwords containing both x and y. A collection of de Bruijn sequences is called *m-articulate* if every pair of k-length words is m-distinguished by at least one of the sequences in the collection.

The notion of m-articulate collections of de Bruijn sequences is attractive as an encoding tool: if x is an unknown k-length word and S is an m-articulate collection, then one can determine x if for every de Bruijn sequence $\sigma \in S$ one knows an m-length subword of σ that contains x.

We prove the existence of small m-articulate collections of de Bruijn sequences under various conditions on m and k. Notably, for $m = k + 1$ we find m-articulate pairs; for somewhat larger values of m, we find m-articulate collections of size at most $|A|$. (Received September 25, 2006)